

160336
ENVIRONMETRICS

RIEDEL ENVIRONMENTAL SERVICES
500 EASTERN AVENUE
BENSONVILLE, IL 60106

2345 Millpark Drive
Maryland Heights, MO 63043-3529
(314) 427-0550

ATTN: MARK DOUGLAS

INVOICE # 32045 SEMIVOLATILE ORGANIC COMPOUNDS
PROJECT # 8168 - SAUGET METHOD SW-846 8270
LANDFILL, SITE G PAGE ONE

SAMPLE ID: METHOD BLANK
LAB ID: SASBLK6315

		PRACTICAL QUANTITATION	
<u>CAS NUMBER</u>		<u>LIMIT</u>	<u>RESULTS</u>
62-75-9	N-Nitrosodimethylamine	330 µg/kg	U µg/kg
108-95-2	Phenol	330	U
111-44-4	bis(2-chloroethyl) Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	o-Cresol	330	U
39638-32-9	bis-(2-Chloro2propyl) Ether	330	U
106-44-5	m & p-Cresol	330	U
621-64-7	N-Nitroso-Di-n-propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1,700	U
111-91-1	bis(2-Chloroethoxy) methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	330	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1,700	U
131-11-3	Dimethylphthalate	330	U
103-33-3	Azobenzene	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
99-09-2	3-Nitroaniline	1,700	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1,700	U

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ATTN: MARK DOUGLAS

INVOICE # 32045 SEMIVOLATILE ORGANIC COMPOUNDS
PROJECT # 8168 - SAUGET METHOD SW-846 8270
LANDFILL, SITE G PAGE TWO

SAMPLE ID: METHOD BLANK
LAB ID: SASBLK6315

<u>CAS NUMBER</u>		<u>PRACTICAL</u> <u>QUANTITATION</u> <u>LIMIT</u>	<u>RESULTS</u>
100-02-7	4-Nitrophenol	1,700 µg/kg	U µg/kg
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenol phenyl ether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1,700	U
534-52-1	4,6-Dinitro-2-methylphenol	1,700	U
86-30-6	N-Nitrosodiphenylamine	330	U
101-55-3	4-Bromophenyl phenyl ether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1,700	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Carbazole	330	U
84-74-2	Di-n-butylphthalate	330	U
206-44-0	Fluoranthene	330	U
92-87-4	Benzidine	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	330	U
117-84-0	Di-n-octylphthalate	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenzo(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U


U = UNDETECTED

B = PRESENT IN BLANK

J = DETECTED, BUT BELOW PRACTICAL
QUANTITATION LIMIT

DATE COLLECTED : ---
DATE RECEIVED : ---
DATE EXTRACTED : 05/12/95
DATE ANALYZED : 05/16/95
ANALYST : D.C.

MAY 23, 1995


WAYNE L. COOPER
LABORATORY DIRECTOR

ENVIRONMETRICS

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ATTN: MARK DOUGLAS

INVOICE # 32045
PROJECT # 8168 - SAUGET LANDFILL, SITE G

ANALYSIS REPORT

PCBs IN SOIL

SW-846 8080

<u>LAB NO.</u>	<u>SAMPLE NO.</u>	<u>IDENTIFICATION</u>	<u>TOTAL ppm</u>	<u>TYPE</u>
PCB-3475		METHOD BLANK	<2	--
9505/200-003		EP-6-DRUM 5/10/95 16:00	3	1260
9505/200-003 MATRIX SPIKE		EP-6-DRUM 5/10/95 16:00	3 68 %	1260 RECOVERY

DATE COLLECTED : 05/10/95 16:00
DATE RECEIVED : 05/11/95 15:27
DATE ANALYZED : 5/16/95
ANALYST : C.D.

MAY 23, 1995


WAYNE L. COOPER
LABORATORY DIRECTOR

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Environmetrics

Contract: RIEDEL

code:

Case No.: DRY

SAS No.:

SDG No.:

Level: (low/med) LOW

	EPA	S1	S2	S3	S4	S5	S6	S7	S8	TOT
	SAMPLE NO.	(NBZ)#	(DCB)#	(FBP)#	(TPH)#	(PHL)#	(2CP)#	(2FP)#	(TBP)#	OUT
01	SASBLK6315	77	83	102	117	76	75	76	74	0
02	9505200-1	0	0	0	0	0	0	0	0	0
03										
04										
05										
06										
07										
08										
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QC LIMITS

S1 (NBZ) = Nitrobenzene-d5 (23-120)
 S2 (DCB) = 1,2-Dichlorobenzene-d4 (20-130) (advisory)
 S3 (FBP) = 2-Fluorobiphenyl (30-115)
 S4 (TPH) = Terphenyl-d14 (18-137)
 S5 (PHL) = Phenol-d5 (24-113)
 S6 (2CP) = 2-Chlorophenol-d4 (20-130) (advisory)
 S7 (2FP) = 2-Fluorophenol (25-121)
 S8 (TBP) = 2,4,6-Tribromophenol (19-122)

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogates diluted out

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Environmetrics

Contract: RIEDEL

Code:

Case No.: DRY

SAS No.:

SDG No.:

Level: (low/med) LOW

	EPA	S1	S2	S3	S4	S5	S6	S7	S8	TOT
	SAMPLE NO.	(NBZ)#	(DCB)#	(FBP)#	(TPH)#	(PHL)#	(2CP)#	(2FP)#	(TBP)#	OUT
01	9505200-1	140 *	184 *	184 *	221 *	77	94	96	105	4
02	9505200-3	83	114	107	134	71	88	90	112	0
03	9505200-3MS	79	106	106	134	67	86	84	111	0
04	SASLCS6315	54	55	81	110	65	64	63	72	0
05										
06										
07										
08										
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QC LIMITS

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 S5 (PHL) = Phenol-d5 (24-113)
 S6 (2CP) = 2-Chlorophenol-d4 (20-130) (advisory)
 S7 (2FP) = 2-Fluorophenol (25-121)
 S8 (TBP) = 2,4,6-Tribromophenol (19-122)

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogates diluted out

Case Narrative

Inorganic Laboratory - Metals

Matrix Spike /Matrix Spike Duplicates

9505-201-4 - Spike recoveries were outside the acceptance range of 75-125% and RPD was >20%. The sample matrix is a granulated soil rock mixture. The sample most likely contains "hot spots" of lead making representative sampling for duplicate/matrix spikes nearly impossible.

CASE NARRATIVE

BNA

REQUIREMENTS FOR ANY QA/QC LEVEL

Case Note: If a CLP Package or the USEPA QA/QC Reporting Package known as "Quality Assurance/Quality Control - Guidance for Removal Activities" is requested all QA/QC reporting documentation required in those documents takes precedence over these requirements.

• General Requirements/Information (Required for all QA/QC Levels)

1. Date sampled 5/10/95 Date received 5/11/95
2. Number of samples received 2
3. Sample description soil
4. Sample preparation date —
Date extracted (if applicable) 5/12/95
5. Date analyzed 5/10 + 5/11/95 Time analyzed 10:10 + 10:25, 11:13, 12:01
Analyst DME DACS/2241
6. Did Riedel indicate a specific method? Yes ☒ No ☐
 - a. If Yes, what was that method? 8270
7. Did Riedel specify additional QA/QC requirement beyond the minimum and mandatory items? Yes ☐ No ☐ If yes, please specify. —
 - a. What QA/QC level was requested? — Used by lab? —
 - b. If lab used a different QA/QC level than requested by Riedel, an explanation must be supplied by lab. —

• QC Remarks (Required as relates to QA/QC level requested)

1. Were holding times met? Yes ☒ No ☐ If No, why? —
2. Test Methods
 - a. Parameters Semivolatiles
 - b. Approved Methods 8270
 - c. Was a cleanup method requested for Semi-Volatile Organic Analyses?
 1. Yes ☐ No ☒
 2. If No, what method was used and why? —
 3. If Yes, identify method used? —

3. Were peak resolutions (i.e. Chromatograms) requested? Yes ___ No X If Yes, please comment. _____
4. Initial calibration (% Relative Standard Deviation) 30%
5. Has continuing calibration (% difference) been requested? If yes, indicate % difference. 20%
6. Were all Matrix Spikes/Matrix Spike duplicates < 20% RSD? Yes ___ No ✓
- a. If Yes, indicate I.D. No. and %: _____
- b. If No, indicate I.D. No. and %, plus why the < 20% RSD was not obtained. only MS was requested
7. Were surrogates run for Organic Analyses? Yes ✓ No ___
- a. If Yes, indicate type and recovery (Min. Recovery is 80%). See forms
- b. If not, indicate why not. See forms
- c. If min. recovery was not obtained, indicate why not? See forms
8. Please provide the following as applicable.
- a. Minimum Detection Limits: 10 ppb
- b. Estimated Quantitation Limits: 10 ppb
- c. Dilution Factor: variable according to Dilutions needed + LODs.
9. Were any other anomalies encountered during the analysis? Yes ✓ No ___
- a. If Yes, type: Samples extracted at Medium level + not concentrated
- b. If Yes, why were they observed? Samples were "dirty"
10. Was this laboratory work performed under either "Minimum and Mandatory Contractual Terms for Analytical Laboratories not on the Pre-Approved Midwest/Great Lakes Region Acceptance List" or a "Master Subcontract" with your laboratory, specifically for ERCS Region V? Yes X No ___
- a. If yes, Environmetrics states that the USEPA document known as "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures Interim Final EPA/540/G-90/004 April 1990" was utilized as guidance in the review and validation of all data for this project.
11. **WARNING!! NO DATA SHALL BE RELEASED** verbally, written, or otherwise to any authorized representative of Riedel Environmental Services, Inc. or their client that does not meet or exceed the QA/QC levels established in any written or verbal RFP for this project, or the requirements for any and all SW 846 Methods or EPA Methods utilized for this project.

Any incorrect data that is released to any authorized Riedel Environmental Services, Inc. representative or their client that causes improper site related work or disposal decisions to be made by Riedel Environmental Services, Inc. or their client, will cause Environmetrics to be completely liable for all costs associated with those decisions.

CASE NARRATIVE

PCB

REQUIREMENTS FOR ANY QA/QC LEVEL

Please Note: If a CLP Package or the USEPA QA/QC Reporting Package known as "Quality Assurance/Quality Control - Guidance for Removal Activities" is requested all QA/QC reporting documentation required in those documents takes precedence over these requirements.

General Requirements/Information (Required for all QA/QC Levels)

1. Date sampled 5-10-95 Date received 5-11-95
2. Number of samples received 2
3. Sample description Wastewater Solid waste
4. Sample preparation date _____
Date extracted (if applicable) _____
12:40
15:51
18:14
16:36
15:28
16:59
5. Date analyzed 5-15-95 Time analyzed _____
Analyst C. J. Patton
6. Did Riedel indicate a specific method? Yes X No _____
a. If Yes, what was that method? SW 846 8080M
7. Did Riedel specify additional QA/QC requirement beyond the minimum and mandatory items? Yes _____
No _____ If yes, please specify. _____
- a. What QA/QC level was requested? _____ Used by lab? _____
- b. If lab used a different QA/QC level than requested by Riedel, an explanation must be supplied by lab. _____

QC Remarks (Required as relates to QA/QC level requested)

1. Were holding times met? Yes X No _____ If No, why? _____
2. Test Methods
 - a. Parameters PCB's
 - b. Approved Methods SW-846 8080
 - c. Was a cleanup method requested for Semi-Volatile Organic Analyses?
 1. Yes X No _____
 2. If No, what method was used and why? _____
 3. If Yes, identify method used? Fluorisor Acid Wash

3. Were peak resolutions (i.e. Chromatograms) requested? Yes ☐ No ☒ If Yes, please comment. _____
4. Initial calibration (% Relative Standard Deviation) < 20
5. Has continuing calibration (% difference) been requested? If yes, indicate % difference. < 15
6. Were all Matrix Spikes/Matrix Spike duplicates < 20% RSD? Yes ☐ No ☒
- a. If Yes, indicate I.D. No. and %. _____
- b. If No, indicate I.D. No. and %, plus why the > 20% RSD was not obtained. Only Matrix Spike Requested
7. Were surrogates run for Organic Analyses? Yes ☐ No ☒
- a. If Yes, indicate type and recovery (Min. Recovery is 80%). _____
- b. If not, indicate why not. Pattern Recognition for PCB
- c. If min. recovery was not obtained, indicate why not? _____
8. Please provide the following as applicable.
- a. Minimum Detection Limits: < 2
- b. Estimated Quantitation Limits: < 2
- c. Dilution Factor: Variable depending on dilution
9. Were any other anomalies encountered during the analysis? Yes ☐ No ☒
- a. If Yes, type: _____
- b. If Yes, why were they observed? _____
10. Was this laboratory work performed under either "Minimum and Mandatory Contractual Terms for Analytical Laboratories not on the Pre-Approved Midwest/Great Lakes Region Acceptance List" or a "Master Subcontract" with your laboratory, specifically for ERCS Region V? Yes ☐ No ☐
- a. If yes, _____ states that the USEPA document known as "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures Interim Final EPA/540/G-90/004 April 1990" was utilized as guidance in the review and validation of all data for this project.
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REQUIREMENTS FOR ANY QA/QC LEVEL

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• General Requirements/Information (Required for all QA/QC Levels)

1. Date sampled 5/10/95 Date received 5/14/95
2. Number of samples received 3
3. Sample description Oil / Solids
4. Sample preparation date 5/10/95 / 5/17/95
Date extracted (if applicable) _____
5. Date analyzed 5/15/95 / 5/17/95 Time analyzed _____
Analyst ELD / SN
6. Did Riedel indicate a specific method? Yes ___ No X
 - a. If Yes, what was that method? _____
7. Did Riedel specify additional QA/QC requirement beyond the minimum and mandatory items? Yes ___
No X If yes, please specify. _____

 - a. What QA/QC level was requested? _____ Used by lab? _____

 - b. If lab used a different QA/QC level than requested by Riedel, an explanation must be supplied by lab. _____

• QC Remarks (Required as relates to QA/QC level requested)

1. Were holding times met? Yes X No ___ If No, why? _____

2. Test Methods
 - a. Parameters RCCA-8
 - b. Approved Methods SW-846 GOKA / 7471A
 - c. Was a cleanup method requested for Semi-Volatile Organic Analyses? N/A
 1. Yes ___ No ___
 2. If No, what method was used and why? _____
 3. If Yes, identify method used? _____

3. Were peak resolutions (i.e. Chromatograms) requested? Yes No If Yes, please comment. N/A
4. Initial calibration (% Relative Standard Deviation) N/A
5. Has continuing calibration (% difference) been requested? If yes, indicate % difference. N/A
6. Were all Matrix Spikes/Matrix Spike duplicates < 20% RSD? Yes X No
- a. If Yes, indicate I.D. No. and %.
- b. If No, indicate I.D. No. and %, plus why the < 20% RSD was not obtained.
7. Were surrogates run for Organic Analyses? Yes No
- a. If Yes, indicate type and recovery (Min. Recovery is 80%).
- b. If not, indicate why not.
- c. If min. recovery was not obtained, indicate why not?
8. Please provide the following as applicable.
- a. Minimum Detection Limits:
- b. Estimated Quantitation Limits:
- c. Dilution Factor:
9. Were any other anomalies encountered during the analysis? Yes No
- a. If Yes, type:
- b. If Yes, why were they observed?
10. Was this laboratory work performed under either "Minimum and Mandatory Contractual Terms for Analytical Laboratories not on the Pre-Approved Midwest/Great Lakes Region Acceptance List" or a "Master Subcontract" with your laboratory, specifically for ERCS Region V? Yes X No
- a. If yes, Environmetrics states that the USEPA document known as "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures Interim Final EPA/540/G-90/004 April 1990" was utilized as guidance in the review and validation of all data for this project.
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CASE NARRATIVE

Inorganic - Metals

REQUIREMENTS FOR ANY QA/QC LEVEL

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• General Requirements/Information (Required for all QA/QC Levels)

1. Date sampled 5/10/95 Date received 5/10/95
2. Number of samples received 2
3. Sample description 0:1 / 50:1
4. Sample preparation date 5/12/95
Date extracted (if applicable) _____
5. Date analyzed 5/15/95 Time analyzed _____
Analyst RLD
6. Did Riedel indicate a specific method? Yes ____ No X
 - a. If Yes, what was that method? _____
7. Did Riedel specify additional QA/QC requirement beyond the minimum and mandatory items? Yes ____ No ____ If yes, please specify. _____
 - a. What QA/QC level was requested? _____ Used by lab? _____
 - b. If lab used a different QA/QC level than requested by Riedel, an explanation must be supplied by lab. _____

• QC Remarks (Required as relates to QA/QC level requested)

1. Were holding times met? Yes X No ____ If No, why? _____
2. Test Methods
 - a. Parameters Lead
 - b. Approved Methods SW-846 3050/4010
 - c. Was a cleanup method requested for Semi-Volatile Organic Analyses?
 1. Yes ____ No ____
 2. If No, what method was used and why? _____
 3. If Yes, identify method used? _____

3. Were peak resolutions (i.e. Chromatograms) requested? Yes No If Yes, please comment. NA
4. Initial calibration (% Relative Standard Deviation) NA
5. Has continuing calibration (% difference) been requested? If yes, indicate % difference.
6. Were all Matrix Spikes/Matrix Spike duplicates < 20% RSD? Yes No X
- a. If Yes, indicate I.D. No. and %:
- b. If No, indicate I.D. No. and %, plus why the < 20% RSD was not obtained. See Attached
7. Were surrogates run for Organic Analyses? Yes No NA
- a. If Yes, indicate type and recovery (Min. Recovery is 80%).
- b. If not, indicate why not.
- c. If min. recovery was not obtained, indicate why not?
8. Please provide the following as applicable.
- a. Minimum Detection Limits:
- b. Estimated Quantitation Limits:
- c. Dilution Factor:
9. Were any other anomalies encountered during the analysis? Yes No
- a. If Yes, type:
- b. If Yes, why were they observed?
10. Was this laboratory work performed under either "Minimum and Mandatory Contractual Terms for Analytical Laboratories not on the Pre-Approved Midwest/Great Lakes Region Acceptance List" or a "Master Subcontract" with your laboratory, specifically for ERCS Region V? Yes X No
- a. If yes, Environmetrics states that the USEPA document known as "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures Interim Final EPA/540/G-90/004 April 1990" was utilized as guidance in the review and validation of all data for this project.
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